SUBSTITUTE SPECIFICATION   MARKED-UP COPY

TITLE

SMALL SIZED INFORMATION DEVICE, SYSTEM AND METHOD FOR

MANAGEMENT OF LENDING OF SMALL SIZED INFORMATION DEVICES,

AND COMPUTER PRODUCT

FIELD OF THE INVENTION

The present invention relates to a technology of carrying out the operations

related to lending of a small sized information device using a terminal connected to a

network. The related to lending operations include reservation of reserving the

information device the user wishes to borrow to, and returning of the borrowed

information device. The small sized information device includes a digital still camera,

a digital video camera and the like.

BACKGROUND OF THE INVENTION

In recent years, a digital camera has been rapidly promoted as an image

inputting device along in conjunction with the popularization of a personal computer

and the Internet and so on. For example, the in an increasing number of cases have

been increased such that the digital camera is used in a company and an office for

taking pictures (for example, of progress and results of a business project or scenes of

an event and, a report of a business journey, or the like). The photos are transmitted

by a digital camera and transmitting these photo data by a electronic mail via a

personal computer, an image outputting device or an internet to report them in real

time.the Internet. Thus, when a company purchases a digital camera and manages

lending of the digital camera, a method such that general software lending is

usedmanaged by methods including the use of general software, or a by the user

1

SUBSTITUTE SPECIFICATION   MARKED-UP COPY

~~writes down a lending managing~~ manually writing a note ~~or~~stating that the ~~like.~~ ~~Alternatively, most of~~camera has been borrowed. Most digital cameras employ a detachable smart medium and a memory card with a limited storage capacity as a recording medium of a pictured image.

~~Following technical literature disclose related matter.~~ Japanese Patent Application Laid-Open (JP-A) No. 9-319960 discloses a technology to solve a problem in case a user ~~forgets and~~ does not returns a portable information device he/she has borrowed. Japanese Patent Application Laid-Open (JP-A) No. 10-93750 ~~is~~ solves the problem of competitive utilization ~~of~~with a scanner, ~~when~~where a plurality of clients share one scanner, ~~by~~through the making of a reservation for the scanner. Japanese Patent Application Laid-Open (JP-A) No. 10-164419 relates to a system in which photographing conditions of a camera can be controlled through a network. In JP-A No. 10-164419 when ~~there occurs a double reservation~~simultaneous reservations occur, the ~~fact is~~users are informed ~~to~~of the ~~users.~~competing reservations.

However, since a formal registration operation for lending a digital camera is complicated ~~on managing lending of a digital camera as described above, there is~~ ~~often the case that,~~ the digital camera is often lent ~~by~~upon a verbal promise~~.~~ to return the camera. This ~~involves a~~results in a problem ~~such~~in that it is not possible to know who ~~posses~~possesses the digital camera ~~now.~~. Alternatively, if the lending management is carried out ~~severely~~in a strict manner, this involved a problem such that the operation~~, which is~~ required for lending the digital camera~~, is increased on~~ ~~each occasion and~~ increases and a burden on an administrator ~~is~~also ~~increased.~~ increases.

SUBSTITUTE SPECIFICATION   MARKED-UP COPY

Alternatively, ~~depending on a standpoint of a user,~~ it ~~is~~ may be necessary to install driver software or the like in a personal terminal ~~on using~~to view a photographed image ~~by a personal computer~~, so that ~~there is~~ a problem ~~such~~results in that the photographed image is not capable of being easily utilized. Additionally, if the images are stored in a detachable medium, the management burden ~~for managing~~ is further increased. Further, when the stored mediums are distributed individually, ~~the medium is~~ because the mediums are very expensive, ~~so that it involves~~ a problem ~~such~~results in that the ~~medium~~distribution of the mediums is not economical.

According to Japanese Patent Application Laid-Open (JP-A) No. 9-319960, although the lent medium is prevented from being returned, reservation of lending and managing thereof are not carried out. Therefore, competition in reservation of lending occurs. According to Japanese Patent Application Laid-Open (JP-A) No. 10-93750 and Japanese Patent Application Laid-Open (JP-A) No. 10-164419, an image inputting device, which is used ~~with being~~as in manner such that the device is always connected, such as a scanner via a network ~~or a device to be used~~, so that the references are not concerned with ~~being connected are booked, so that they are not used with~~release of the connection from the system ~~released~~.

SUMMARY OF THE INVENTION

It is one object of this invention to share efficiently a small size information device and decrease the operation for managing lending of the small size information device.

It is an another object of the present invention to enable distribution of images without installing a dedicated drive software in a terminal and using a conventional medium by taking images from the small size information device from a server and

transmitting the images to the terminal in accordance with a transmission method on reservation.

According to one aspect of the present invention, for example, on using the digital camera, a user of the digital camera performs the input operation for reservation from a client terminal, which is connected to a network, to a server terminal and the server terminal registers reservation of the digital camera and lend it depending on reservation input information from the client terminal, so that the reservation, the lending and management thereof are systemized and the lending reservation becomes capable of being inputted on the client terminal.

According to another aspect of the present invention, for example, on using the digital camera, a-dedicated client software is not used but a WWW (World Wide Web) server is installed on the server terminal to build a system on a WWW. Then, the client terminal activates a general WWW browser and the user inputs a URL (universal resource locator) of the server terminal, so that a lending reservation page of the small size information device is displayed and the input operation is capable of being performed on this lending reservation page.

Other objects and features of this invention will become apparent from the following description with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram showing a constitution of a digital camera lending management system according to an embodiment of the present invention;

Fig. 2 is a block diagram showing an internal constitutionportion of the digital camera in-of Fig. 1;

SUBSTITUTE SPECIFICATION   MARKED-UP COPY

Fig. 3 is a block diagram showing an internal ~~constitution~~portion of a digital

camera server ~~in~~ of Fig. 1;

Fig. 4 is an ~~explanation~~explanatory drawing of an example of a main panel of

a lending reservation client according to the ~~embodiment of the~~ present invention;

Fig. 5 is an ~~explanation~~explanatory drawing of a user certification dialogue

box of the lending reservation client according to the ~~embodiment of the~~ present

invention;

Fig. 6 is an ~~explanation~~explanatory drawing of a reservation success dialogue

box of the lending reservation client according to the ~~embodiment of the~~ present

invention;

Fig. 7 is an ~~explanation~~explanatory drawing of a reservation failure dialogue

box with respect to a failure of the certification on lending reservation according to

the ~~embodiment of the~~ present invention;

Fig. 8 is an ~~explanation~~explanatory drawing of a reservation failure dialogue

box, in the case that the reservation desired date is already reserved, on lending

reservation according to the ~~embodiment of the~~ present invention;

Fig. 9 is an ~~explanation~~explanatory drawing showing a panel example for

reservation inspection and reservation cancellation according to the ~~embodiment of~~

~~the~~ present invention;

Fig. 10 is a flowchart showing a reservation processing example according to

the ~~embodiment of the~~ present invention;

Fig. 11 is a flowchart showing a lending processing example according to the

~~embodiment of the~~ present invention; and

SUBSTITUTE SPECIFICATION   MARKED-UP COPY

Fig. 12 is a flowchart showing a restoration processing example according to

the ~~embodiment of the~~ present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Preferable embodiment of the present invention will be explained with

reference to the accompanying drawings below. It is assumed here that the small sized

information device is a digital camera. However, the present invention is not limited

to ~~this embodiment.~~ use with the digital camera.

According to the present invention, upon using the digital camera, a user

manages the operation from lending reservation to restoration (return) via a terminal,

which is connected to the network. The summary of the present invention is as

follows. At first, a digital camera server terminal receives a lending reservation,

which is accessed from the terminal, and manages it. Then, when the user wishes to

actually use the digital camera ~~in actual,~~ the digital camera server terminal checks the

user's certification by the IC (integrated circuit) card and the password or the like and

the reservation. ~~It~~If the check is successful, the digital camera server terminal

transmits a setting signal, which is capable of being used by the digital camera, to the

digital camera. After that, when the user returns the digital camera, the digital camera

server terminal reads the image data and transmits the image data by a transmission

method, which the user desires, in accordance with reservation. ~~The~~

~~constitution~~Portions and ~~the~~ operation of the system will be explained below.

Fig. 1 is a block diagram showing a ~~constitution~~portion of a digital camera

lending management system according to ~~an embodiment of~~ the present invention. Fig.

2 is a block diagram showing an internal ~~constitution~~portion of the digital camera ~~in~~

SUBSTITUTE SPECIFICATION   MARKED-UP COPY

of Fig. 1. Fig. 3 is a block diagram showing an internal ~~constitution~~portion of a digital

camera server ~~in~~ of Fig. 1.

In this system, a digital camera 10 is connected on a LAN (local area network)

50 by a cable 45 and a digital camera server 20 for managing lending reservation of

the digital camera 10 ~~and a client.~~ Client terminals 40a and 40b for reserving

(accessing) lending of the digital camera 10 are connected on the LAN 50 in a broad

sense. A printer is connected to the LAN 50 (not illustrated). Although Fig. 1 shows

only one digital camera 10, ~~however,~~ a plurality of digital cameras ~~may~~may be

provided. When there are many digital cameras, all the cameras may of the same type

or each digital camera may be of different type. Further, although the digital camera

10 is shown to be connected to the digital camera server terminal 20 through the cable

45, ~~however,~~ the digital camera 10 may ~~be made to~~ communicate with the digital

camera server terminal 20 using radio waves (such as infrared rays~~.~~).

The digital camera server terminal 20 comprises a serial port I/F (interface) 21,

a digital camera driver 22, a display device 23, an IC (integrated circuit) card reader

24, a reservation checking section 25, a user certification section 26, an image

transmission section 27, a reservation managing section 28, a reservation database

(DB) 29, a user database (DB) 30 and a network I/F 31.

The serial port I/F 21, for example, uses a serial interface such as an RS-232C

or USB (Universal Serial Bus) or the like. When reserving or after returning the

digital camera, the I/F section of the digital camera 10 and the digital camera server

terminal 20 are connected by the cable 45 to transmit a predetermined signal to the

digital camera 10. The digital camera driver 22 controls a whole of the digital camera

server terminal 20 collectively. The display device 23 displays information associated with lending reservation/restoration.

The IC card reader 24 is a device which reads the ID (identification number) of a user when the user inserts his/her IC card in it. The reservation checking section 25 ~~has a function for checking~~checks the reservation status and ~~displaying~~displays the status on the display device 23. The user certification section 26 authenticates the user ID (and a password~~and~~, a fingerprint, or the like) which is inputted by the IC card reader 24, by searching the user information~~, which is~~ stored in the user database 30.

The image transmission section 27 reads the image data from the digital camera 10 and transmits the images in accordance with a setting. The reservation managing section 28 manages lending reservation and restoration and so on in accordance with information~~, which is~~ transmitted from ~~the~~ client software via the network I/F 31, and information, which is stored in the reservation database (DB) 29.

Alternatively, as shown in Fig. 3, the digital camera server terminal 20 comprises a lock control section 32 for transmitting a lock/release signal of the digital camera 10 in accordance with success~~/failure of~~ful/failed reservation checking, an image inputting section 33 for inputting the images from the digital camera 10 via the serial port I/F 21, a WWW (World Wide Web) server 34 for searching a Web page by a HTTP (Hyper Text Transfer Protocol) and a reservation status transmission section 35 for transmitting the reservation status. Alternatively, the WWW server 34 may be installed according to need.

The present embodiment will be explained taking a system in accordance with the IC card using the IC card reader 24 and its password as an example. However, in addition to the above system, a system in accordance with a well known magnetic

SUBSTITUTE SPECIFICATION   MARKED-UP COPY

card and a system in accordance with fingerprint checking may be used. In other

words, in the case of the magnetic card, a magnetic card reader may be provided in

place of the IC card reader 24 and in the case of the fingerprint, a fingerprint image

inputting device may be provided in place of the IC card reader 24.

A GUI (graphical user interface) of the client software, which is described

later in Fig. 4 to Fig. 9, is installed in the client terminals 40a and 40b.

As shown in Fig. 2, in the digital camera 10, an image inputting (photography

or shooting) section 12 for inputting images by a lens and CCD (charge coupled

device) or the like, an image storing section 13 for storing photographed images, an

image displaying section 14 for displaying the case of monitoring the images, a lock

section 15 for ~~realizing~~providing the lock function ~~such as~~to make photography

possible/photography impossible by a signal from the outside, an available time

management section 16 for managing the time, which is available by reservation

lending and an available time displaying section 17 for displaying the time, which is

available by reservation lending and an image transmission section 18 for transmitting

the images to the digital camera server terminal 20 are connected to a camera control

section 11 for controlling a full body of the camera.

Operation of the digital camera lending management system and the digital

camera will be explained with reference to ~~explanation~~explanatory diagrams shown in

Fig. 4 to Fig. 9 and flowcharts shown in Fig. 10 to Fig. 12 in the order of reservation,

lending, restoration, confirmation of reservation status and cancellation of reservation.

Fig. 4 illustrates a main dialogue box, Fig. 5, a user certification dialogue box, Fig. 6,

a reservation success dialogue box, Fig. 7, a reservation failure dialogue box with

respect to failure of certification, Fig. 8, a reservation failure dialogue box in the case

that the reservation desired date is already reserved, and Fig. 9, a reservation

inspection and cancellation panel, respectively. Additionally, a whole window is

referred to as a dialogue box and ~~an enflamed~~ a section is referred to a button. This

button is clicked to be selected (inputted).

The reservation processing will be explained below. At first, operating any

one of the client terminals 40a and 40b~~,~~ results in a display of a main dialogue box 50

~~is displayed.~~. A digital camera selection 51 for selecting a digital camera name, a

reservation desired date 52, a transmission method 53, an address 54 and a reservation

button 55 are displayed on the main dialogue box 50. They are capable of being

inputted.

In the main dialogue box 50 in Fig. 4, selecting the name of the digital camera,

inputting the reservation desired date (lending date, restoration date), the transmission

method and the address, the reservation button 55 is clicked. Then, a dialogue box 56

for the user certification is displayed (Fig. 5). Here, a user ID 57 and a password 58

are inputted. If the input is correct, an OK button 59 is clicked and if it is incorrect or

it should be cancelled, a cancel button 60 is clicked. Alternatively, after inputting the

user ID and the password, if the user wishes to continue the reservation, the OK

button 59 is clicked and if the user does not wish to continue the reservation, the

cancel button 60 is clicked.

Inputting the user ID and the password, the reservation desired date, the

transmission method, the user ID and the password are transmitted from the client

terminals 40a and 40b to the digital camera server 20 via the LAN 50. The digital

camera server 20 receives the above described input information, respectively to

display in accordance with reservation success/reservation failure. In other words,

SUBSTITUTE SPECIFICATION   MARKED-UP COPY

when the input information is correct and the reservation is not overlapped

(~~competed~~such that there is not competition for use of the camera at that time), a

reservation success dialogue box 61 indicating "reservation is accepted" is displayed

as shown in Fig. 6.

On the other hand, when the inputted user ID and the password are found to be

incorrect as a result of the certification, a reservation failure dialogue box 62

indicating "the user certification is failed" is displayed as shown in Fig. 7.

Alternatively, when another reservation is already registered in the inputted

reservation desired date, a reservation failure dialogue box 63 showing "another

reservation is already registered in the inputted reservation desired date" is displayed

as shown in Fig. 8.

Fig. 10 is a flowchart showing the operation of reservation processing. At first,

in the digital camera server 20, the reservation managing section 28 receives the

reservation information, which is transmitted from the client software via the network

I/F 31 (step S11). In this case, if the reservation information is encrypted, it will be

decrypted. Then, by transmitting the user ID and the password to the user certification

section 26, the user certification section 26 checks them with the user database 30 to

authenticate them (step S12), so that it is judged whether the user is found or not (step

S13), in other words, the user certification is carried out.

In the case that it is confirmed that the user ID exists in the user database 30

and it is judged that the user is found, the password is checked (step S14) After that, it

is judged whether the inputted password is correct or not (step S15). In this case, if the

password is judged to be correct, the reservation database 29 is searched with respect

to a reservation desired date (step S16).

As a result of the above search, it is judged whether the reservation of the reservation desired date exists or not (step S17). In this case, if it is judged that the reservation desired date is not reserved in the reservation database 29, the reservation information is stored in the reservation database 29 (step S18) and reservation completion information is transmitted to the client terminal (step S19). Alternatively, in the case that the reservation is successful, the reservation success dialogue box shown in Fig. 6 is displayed.

On the other hand, in the case that it is judged that the user is not found in the above step S13, or the password is incorrect in the above step S15, or the reservation is overlapped in the above step S17, error information is transmitted to the client software (step S20). The client software displays the reservation failure dialogue box shown in Fig. 7. Alternatively, in the case that the reservation date is overlapped, the client software displays the reservation failure dialogue box shown in Fig. 8.

In the mean time, checking with a directory server, which is connected to the network when the user database 30 is not provided in the digital camera server 20, the user certification as same as the above may be carried out. Alternatively, if the client software hasstores a function to store setting such as a transmission method or the like in a file or the like, a desired setting will be easily performed by reading the stored file.

Additionally, when the client software has a function to searchsearches the available digital camera server terminal 20 automatically, even in the case that the user of a mobile terminal such as a note PC or the like connects one's-the PC to the network away from home, searching the near digital camera server terminal 20 and setting the transmission method usually enable the digital camera to be reserved. Alternatively, in this case, it is assumed that the same kind of digital camera server 20

12

is also connected to the network away from home. Further, if the transmission of the

reservation information to the digital camera server 20 needs more security, the

reservation information may be encrypted.

Other than using the dedicated client software in the above described

reservation processing, installing the WWW server 34 (see Fig. 3) in the digital

camera server 20, a system may be built on the WWW. In this case, the client

terminals 40a and 40b activate the general WWW client software (browser software)

and the user inputs a URL (uniform resource locator) of the digital camera server 20

to access the digital camera server 20. As a result, the same page as that in Fig. 4 will

be displayed.

The operation performed when lending the digital camera 10 will now be

explained. Fig. 11 is a flowchart illustrating the lending processing. At first, the user

inserts the IC card, in which one's user ID is stored, into the IC card reader 24, which

is housed in the digital camera server 20 (step S21). The user certification section 26

reads out the user ID through the IC card reader 24 (step S22) and the user

certification section 26 checks (searches) the user database 30 with respect to the

corresponding user ID (step S23).

As a result of searching in the above step S23, it is authenticated <u>or</u>

<u>determined</u> whether the user ID read in the user database 30 exists or not, in other

words, it is judged whether the user is found or not (step S24). If the certification ~~is~~

~~failed~~<u>fails</u>, a message indicating the digital camera is not available is displayed on the

display device 23 (step S30) On the other hand, in the case that ~~it is judged that~~ the

user is found, the reservation managing section 28 searches the reservation database

29 with respect to the user ID (step S25) to return the result to the reservation

checking section 25.

Consequently, the reservation checking section 25 judges whether the

reservation is found or not from the result of the above step S25 (step S26). In this

case, if it is judged that the reservation is not found, in other words, it is judged that

the reservation in not registered, this is displayed on the display device 23 (step S30).

On the other hand, if the reservation is registered, the reservation checking section 25

compares the current time with a reserved time to judge whether the current time

corresponds to the reserved time or not (step S27). In this case, if the both of times do

no correspond to each other, a message that the both of times do nonot correspond is

displayed on the display device 23 (step S30).

When the two time parameters correspond to each other in the above step S27,

the lock of the digital camera 10 is released (step S28). In other words, if the

reservation checking is successful, the lock/release signal is transmitted to the digital

camera 10. Alternatively, the lock/release signal includes the information of the

reservation date. After that, the digital camera 10 is detached from the cable 45 (step

S29).

Thus, lending of the digital camera 10 is successful and the user is capable of

detaching the digital camera 10 from the cable 45 and using it. If the used time is over

the reserved time, the user is not capable of using the digital camera 10 again. A

display panel of the digital camera 10 is capable of displaying resta remaining balance

of the used time. If the used time is over, the display panel of the digital camera 10

displays a message for encouraging returningthe return of the digital camera 10.

14

SUBSTITUTE SPECIFICATION   MARKED-UP COPY

Hereinafter, is becomes impossible to take a picture and store the photograph even

after pushing a release button.

The operation performed when returning the borrowed digital camera 10 will

now be explained below. At first, the user concludes using the digital camera 10 and

connects the digital camera 10 to the cable 45 of the digital camera server 20 again

(step S31) to return the digital camera 10. When the digital camera 10 is returned, the

reservation managing section 28 takes in the image transmission method from the

reservation in execution to set the image transmission method by the image

transmission section 27 (step S32).

In accordance with the image transmission method, which is set, at first, the

digital camera 10 takes in the image (step S33) to transmit the image, which is taken

in (step S34). After that, locking the digital camera 10 (step S35) occurs, and the

reservation which has been executed is deleted from the reservation database 29 (step

S36).

Alternatively, the followings may be used as the image transmission method.

For example, the image may be transmitted by attaching it to an email. In this case,

encoding the image and attaching it to the email, the encoded images are transmitted

to the designated mail address. As a second method, the image may be transmitted

through an FTP (File Transfer Protocol) server, which enables the transference of files

between different systems and the transference of different structural files, is used.

According to the method by the FTP server, the FTP connection is established

with respect to the designated FTP server and the data is transmitted to the designated

directory in accordance with the FTP. Alternatively, the FTP comprises a file transfer

protocol, which is provided by a TCP/IP (Transmission Control Protocol/Internet

Protocol). Making good use of the FTP, it is possible to store the image data in the

FTP server without passing through a medium such as a floppy disk and with omitting

the ~~labor~~use of the receiver.

As another method, a file is uploaded to the designated directory by using a

PUT method (file transfer by a PUT command) of an HTTP (Hyper Text Transfer

Protocol) with respect to the HTTP server. As a fourth method, the data may be

transmitted to a printer. In this case, the data is transmitted to the designated printer in

accordance with the protocol, which is supported by the printer and the data is printed

out.

Alternatively, in place of installing the WWW server's function (WWW server

34) in the digital camera server 20 and transmitting the image data, a method for

storing the data in the digital camera server terminal 20 may be used. In this case,

using the WWW browser from the client terminals 40a and 40b and accessing the

digital camera server terminal 20, the image data is capable of being inspected.

The operation performed when checking the reservation status and

cancellation of the reservation will be explained below. Setting a function for

confirming the reservation status and canceling the reservation, a more usable system

is realized. Fig. 9 shows a panel example for reservation inspection and reservation

cancellation. The client software displays a panel as shown in Fig. 9. If the user

selects the data, the reservation status of the designated date is displayed by a graph

and a list, which are indicated graphically along a time axis. Clicking (highlighting)

the reservation, which is registered by the user oneself in the list and clicking the

reservation cancellation button, the client software requires the reservation

cancellation with respect to the digital camera server terminal.

Thus, according to the above described embodiment, on using the digital

camera 10, it is not possible to take a picture by the digital camera 10 unless the

digital camera 10 is reserved to release the lock function thereof. Alternatively, when

the reserved time is over, the function of the digital camera 10 is not capable of being

used again, SOso that it is possible to prevent the digital camera 10 from being

becoming missing as it isand not being returned. Since the all reservation/lending

operation is computerized, it is possible to greatly decrease extremely the lending

management operation of lending.

Although the user is required to perform the accessing operation for

reservation, the labor for moving the photographed images to the user's PC and

installing the device driver is decreased, so that the user is capable of using casually

the digital camera. Therefore, according to this embodiment, it is possible to share the

digital camera efficiently.

Additionally, a combination of the digital camera server terminal 20 (the

lending reservation management server) and the digital camera 10 (a device provided

with a lock function) according to the present embodiment is capable of being used

efficiently in the lending management of devices other than the digital camera 10, for

example, a portable terminal, a portable telephone, a game machine or a PC provided

with a camera function and a mobile device or the like.

As explained above, with respect to a small sized information device lending

management system according to one aspect of the present invention, for example, on

using the digital camera, the user of the digital camera performs the reservation input

operation with respect to the server terminal from the client terminal, which is

connected on the network and the server terminal registers the reservation of the

SUBSTITUTE SPECIFICATION   MARKED-UP COPY

digital camera and lends it in accordance with the registration input information from

the client terminal, so that the operation from reservation to lending and management

thereof is systemized and it becomes possible to input for reservation of lending on

the client terminal. Therefore, the digital camera is capable of being shared

~~Efficiently~~efficiently via the network and the managing operation (work) from

lending to restoration thereof is capable of being decreased.

According to the small sized information device lending management system

according to another aspect of the present invention, for example, on using the digital

camera, the dedicated client software is not used, the WWW server is installed on the

server terminal to build a system on the WWW, the client terminal activates a general

WWW browser and the user inputs the URL of the server terminal, so that a lending

reservation page of the small sized information device is displayed and the input

operation is capable of being performed in the lending reservation page. Therefore,

the digital camera is capable of being lent, managed and shared efficiently by the

terminal on the network and the managing operation (work) from lending to

restoration is capable of being decreased.

Furthermore, in the case that the server terminal authenticates the user and the

user certification is successful, checking the user with the reservation status to

confirm the reservation registration, the digital camera is lent. Therefore, if the user

who does not register the reservation yet tries to use the digital camera, it is not

possible to borrow the digital camera by means of the user certification. As a result,

accurate lending and managing thereof are realized.

Furthermore, in the case of authenticating the user, checking the inputted user

ID and the password with the user information, which is already registered in the user

base in advance, the user certification is capable of being performed reliably.

Therefore, ~~the case that~~lending of the digital camera ~~is lent~~ to the user who does not

register the reservation by mistake is avoided.

Furthermore, as the user certification, the magnetic card is used to check the

user ID and the password, which are registered in the magnetic card with the user

information, which is registered in the user <u>data</u>base in advance, so that the user

certification and lending are realized by the rather low-cost magnetic card.

Furthermore, as the user certification, the IC card is used to check the user ID

and the password, which are registered in the IC card with the user information, which

is registered in the user base in advance, so that the certification data becomes more

reliable than the data in the magnetic card. Therefore, more reliable user certification

and lending management are realized.

Furthermore, as the user certification, the fingerprint certification is used to

check the user ID and the password, which are registered in the IC card with the user

fingerprint, which is registered in the user base in advance, so that the IC card or the

like is not needed and the user simply puts one's finger on the fingerprint image

inputting section. Therefore, a simple and reliable lending management is realized.

Furthermore, for example, on lending the digital camera after registration of

lending reservation thereof, the lock of the digital camera is released after the user

certification is successful, so that when the user who does not registers the reservation

tries to use the digital camera, the digital camera is locked and ~~it becomes possible
that the case~~use of the digital camera ~~is used~~ without permission is prevented.

Furthermore, for example, on reserving the digital camera, a method for

transmitting the images are designated and the server terminal transmits the images

via the network in accordance with the transmission method, which is designated at

reservation on returning the digital camera, so that the images are transmitted not via

a medium but via the network when the images are distributed to individuals by using

a storage medium such as a conventional smart medium or the like. Therefore, the

digital camera is capable of being managed ~~rather simply~~in a simple manner and the

cost of the medium is not ~~needed~~determinative, so that such a small sized information

device lending management system is economical.

Furthermore, for example, in the case of transmitting the images, which is

taken into the server terminal from the digital camera, to the client terminal, the

electronic ~~computer-originated~~ mail is used, so that it is possible to receive the images

with a simple operation such as a normal mail reception without using the storage

medium such as a smart medium or the like in order to distribute the images to the

designated address.

Furthermore, for example, in the case of transmitting the images, which is

taken into the server terminal from the digital camera, to the client terminal, a FTP

(file transfer protocol) to be provided by the TCP/IP is used, so that the image transfer

is reliably performed not through a medium such as a floppy disk or the like and even

when the receiver does not always attends there.

Furthermore, for example, in the case of transmitting the images, which is

taken into the server terminal from the digital camera, to the client terminal, a PUT

command (file transfer) of the HTTP is used to transfer the images to the receiver, so

that the image transfer is reliably performed not through a medium such as a floppy

disk or the like and even when the receiver does not always attends there.

Furthermore, for example, the images, which are taken into the server terminal from the digital camera, is outputted to a printing device such as a printer, so that forming the images on a recording paper, which is outputted by the printing device, realizes the image distribution not through a medium such as a floppy disk or the like.

Furthermore, for example, the images, which are taken into the server terminal from the digital camera, is not transmitted to the client terminal but is stored in the WWW server. Then, it is possible that the client terminal accesses the server terminal using the WWW browser and the images are taken out. Therefore, the user is capable of inspecting the images according to need.

According to the small sized information device of still another aspect of the present invention, for example, since the digital camera is provided with a lock mechanism, by which the digital camera is locked ON/OFF with an external signal, even when the user who does not register the reservation tries to use the digital camera without permission, it is possible to prevent the digital camera from ~~being~~becoming missing.

Furthermore, the system displays the rest of the reserved time on the displaying device and the camera (device) is locked when the reserved time is over. As a result, priority is given to the use in accordance with the reservation registration and chances such that the reservation use is completed become high.

According to the lending reservation method of still another aspect of the present invention, for example, using a series of operation (work) such as the reservation registration for lending the digital camera, the reservation confirmation on lending of the digital camera and locking on/off of the digital camera as a software, it is possible that the digital camera is shared efficiently via the network and the

21

management operation (work) from lending to restoration of the digital camera is capable of being decreased.

Furthermore, the images are transmitted from the digital camera via the network in accordance with the designated image transmission method, so that it becomes possible that the images are transmitted to a predetermined receiver's terminal not via a medium but via the network when the images are distributed to individuals by using a storage medium such as a conventional smart medium or the like. Therefore, the digital camera is capable of being managed rather simply and the cost of the medium is not ~~needed~~determinative, so that such a small sized information device lending management system is economical.

Furthermore, the user is capable of selecting and designating any one of the electronic ~~computer-originated~~ mail, the FTP (file transfer protocol) in the TCP/IP, the PUT command (file transfer) of the HTTP, a printer output and a method for storing in the WWW server in accordance with an appropriate method. Therefore, the image distribution is realized by an appropriate method and without the storage medium.

The present document incorporates by reference the entire contents of Japanese priority document, 2000-001134 filed in Japan on Jan. 6, 2000.

Although the invention has been described with respect to a specific embodiment for a complete and clear disclosure, the appended claims are not to be thus limited but are to be construed as embodying all modifications and alternative constructions that may occur to one skilled in the art which fairly fall within the basic teaching herein set forth.